

**From:** "Kathleen Reuter" <kreuter@westernuniteddairymen.com>  
**To:** <NPDES\_CAFO@rb5s.swrcb.ca.gov>  
**Date:** Fri, Nov 5, 2004 4:47 PM  
**Subject:** RB5 draft comments

Kathleen Reuter  
Western United Dairymen  
voice: 209.527.6453  
fax: 209.527.0630  
kreuter@westernuniteddairymen.com

---

**CC:** "Paul E. Martin (E-mail)" <paulwud@callatg.com>

381A

A137

COST ESTIMATE FOR PROFESSIONAL SERVICES  
RELATED TO PROPOSED NPDES & WDR  
FOR EXISTING MILK COW DAIRIES

November 5, 2004

Prepared by:



environmental  
agricultural | civil

2200 Aldersgate Ct  
Turlock, CA 95382

(559) 381-0607  
(209) 634-4456 (fax)

A138

## Table of Contents

<u>1.0</u>	<u>Introduction</u>	3
<u>2.0</u>	<u>Implementation Phase</u>	3
2.1	<u>NOI</u>	4
2.2	<u>WMP</u>	4
2.3	<u>NMP</u>	4
2.4	<u>MWIP</u>	5
2.5	<u>MWICR</u>	5
2.6	<u>Monitor Well Installation(if required, based on facility size)</u>	5
<u>3.0</u>	<u>Monitoring and Reporting Phase</u>	6
3.1	<u>Operator Monitoring</u>	6
3.2	<u>Manure and Wastewater Testing</u>	6
3.3	<u>Soil Testing</u>	7
3.4	<u>Surface Water Testing</u>	7
3.5	<u>Storm Water Monitoring</u>	7
3.6	<u>Groundwater Monitoring</u>	7
3.7	<u>Groundwater Monitoring Reporting</u>	7
3.8	<u>Annual Reporting</u>	8
<u>4.0</u>	<u>Summary</u>	8
	<u>Table of Appendices</u>	9

0411A

A139

## **1.0 Introduction**

This report has been prepared at the request of Western United Dairymen to estimate the costs involved for professional services related to the proposed National Pollutant Discharge Elimination System(NPDES) General Permit and Waste Discharge Requirements(WDR) General Order for Existing Concentrated Animal Feeding Operations (Milk Cow Dairies).

The proposed regulatory program requires a significant submittal of initial implementation documentation, including a Waste Management Plan, Nutrient Management Plan, Monitor Well Installation Plan and application with supporting documentation. Additionally, periodic monitoring and reporting will be required throughout the effective life of the permit. This cost estimate documents the costs associated with professional services required to implement and monitor/report a dairy facility, as outlined in the proposed regulations.

The staff of our firm has been providing engineering services to livestock operations throughout the western United States for nearly ten years, with the majority of our experience in California, Oregon, and Idaho. We are familiar and experienced with each of the tasks required in the proposed California Regional Water Quality Control Board - Central Valley Region regulations. Our staff consists primarily of Civil and Environmental engineers and technicians. We are currently pursuing certification in the Natural Resources Conservation Service(NRCS) Technical Service Provider program, with expected completion during early 2005. We have certified Nutrient Management Planners in Idaho and will be pursuing certification in California through the NRCS training program.

## **2.0 Implementation Phase**

Implementation of the proposed NPDES/WDR regulations requires submission of a Notice of Intent(NOI) to comply with the General Permit. In addition to the NOI, or application, a significant amount of information must be submitted to document the conditions at the dairy facility. The following is a brief description of elements that must be provided to insure compliance with the General Permit.

- Notice of Intent - The NOI is generally an application for coverage under the conditions of the General Permit. However, many of the items requested on the NOI require the aid of a technical professional, including Nutrient Management Plan(NMP) preparation and amounts of solid manure and wastewater produced by the facility.
- Waste Management Plan(WMP) - Waste Management Plan is generally a technical description of the dairy production facility, including engineering certification the facility meets the requirements of the General Permit.
- Nutrient Management Plan(NMP) - This plan is intended to document the land

application methods and rates utilized by the operator, in addition to documenting Best Management Practices implemented on the land application fields.

- Monitoring Well Installation Plan(MWIP) – This plan is only required by the larger facilities(1300 mature cows or greater). Generally, this plan is used to document the proposed groundwater monitoring program, prior to installation.
- Monitoring Well Installation Completion Report(MWICR) – This report is prepared after the installation of monitoring wells is completed.

## 2.1 NOI

This application is intended to be completed and submitted by the dairy operator, however, some assistance will likely be required by a technical professional. We have included a cost to assist the dairy operator in the completion of the NOI, which includes the initial meeting with the operator and completion of the application.

Total Cost - \$437.50

## 2.2 WMP

Significant portions of the WMP must be completed and certified by a civil engineer, registered pursuant to California law. Our estimate is based on our staff professional engineers preparing the entire WMP. Specific items included in the WMP are as follows:

- Site topographic survey
- Site Map or Plan preparation
- Calculations to verify containment capacity in compliance with regulations
- Flood Engineering Report
- Runoff Engineering Report
- Operation & Maintenance Plan
- Testing Protocol Plan

Total Cost - \$4,315.00

## 2.3 NMP

The costs associated with the development of the NMP have been reduced to account for the information already prepared in the WMP. The NMP must be prepared by and certified by a Soil Scientist, Agronomist, Crop Scientist, Crop Advisor, or Technical Service Provider. The cost estimate for this element does not include the soil, tissue, wastewater, or manure testing required for the

A 141

preparation of the NMP, however, these items have been included in subsequent sections of this report.

Total Cost - \$2,475.00

## 2.4 MWIP

The MWIP preparation costs are based on preparation by a civil engineer, experienced in hydrogeology.

Total Cost - \$1,125.00

## 2.5 MWICR

The monitoring well completion report is intended to document the installation of the installation and construction of the monitoring well system. This report will also be completed by a civil engineer experienced in hydrogeology.

Total Cost - \$1,500.00

## 2.6 Monitor Well Installation(if required, based on facility size)

Dairy operations with 1300 or greater mature cows will be required to install a monitoring well network. The monitoring wells are usually installed to sample the first encountered groundwater. This requires the monitoring wells be installed a minimum of approximately 30' deep, to properly construct the well. This item is very difficult to estimate, as the cost of installation of monitoring wells is based on depth of well, soil conditions, well stability conditions, and number of monitoring wells required. As a basis for this estimate, we have made the following assumptions:

- Four monitoring wells will be installed. Three would be the least number of wells to install, however, most monitoring well networks would likely include at least four wells.
- The wells are assumed to be installed to 75' - approximately 60' to first encountered groundwater. The monitoring wells in the northern/central San Joaquin Valley will likely be 25' to 100' deep, with the depth to first encountered groundwater increasing in the southern portions of the Valley, excluding local "perched" water table areas in Kings, Tulare, and Kern counties.

Total Cost - \$29,540.00

The total cost, based on estimates documented above, to implement the requirements of the proposed General Permit regulatory requirements are approximately \$39,400. This cost is simply to prepare the required documentation and install the compliance monitoring equipment (monitoring wells). No testing, monitoring, or reporting costs are included in this estimate.

Total Cost - \$39,400.00

### ***3.0 Monitoring and Reporting Phase***

The second portion of the proposed regulations includes the on-going monitoring and reporting of the information. The following is a summary of the costs associated with the monitoring and reporting of the results.

#### **3.1 Operator Monitoring**

This section of the monitoring and reporting program is intended to be completed by the facility operator. However, most dairy facilities do not have a technically trained staff member to complete this monitoring and reporting. We have prepared an estimate to complete this task for the operator, using engineers and engineering technicians, however, this level of professional certification is not required for this segment of the regulations. However, the operator of the dairy would likely incur costs of at least half this amount utilizing existing dairy staff to complete the inspections.

Total Cost - \$6,652.50

#### **3.2- Manure and Wastewater Testing**

The cost estimate for this testing phase is based on twice per year sampling and three manure samples per sampling event. Wastewater sampling is based on four samples per year to account for dilution rate changes in the wastewater retention pond.

Total Cost - \$2,535.00

UPLA

A 143

### 3.3 Soil Testing

This element of the Monitoring and Reporting Program requires soil sampling every five years. However, a properly implemented NMP requires annual soil sampling.

Total Cost - \$1,140

### 3.4 Surface Water Testing

This portion of the Monitoring and Reporting Program would only be required in the event of an off-site discharge of wastes or storm water that has been in contact with waste. It is assumed this item will not be required for the average dairy, however, the sampling and reporting costs have been included.

Total Cost - \$2,000.00

### 3.5 Storm Water Monitoring

Storm water monitoring will only be required for the first two years, for facilities found to be in compliance with existing regulations.

Total Cost - \$2,975.00

### 3.6 Groundwater Monitoring

The costs associated with this phase of the project are based on the following assumptions:

- Four Monitoring Wells
- Monitoring Well Depth - 75'
- One Domestic Well
- Three Irrigation Wells
- Quarterly Sampling (4 times per year)

Total Cost - \$13,250.00

### 3.7 Groundwater Monitoring Reporting

The results of the quarterly groundwater monitoring are to be reported on a semi-annual basis. The Groundwater Monitoring Report shall include a tabular and

graphical presentation of the sampling events, in addition to a comparison with historical data. Elevation data, including mapping, of the data will also be provided as part of the Groundwater Monitoring Report.

Total Cost - \$1,880.00

### **3.8 Annual Reporting**

Annual reporting will include data regarding NMP compliance, chemical use, manure and wastewater generated and exported, and required monitoring data.

Total Cost - \$437.50

The total annual cost, based on estimates documented above, to comply with the requirements of the proposed General Permit regulatory requirements are approximately \$28,870. This cost is an estimate of the annual costs to monitor and report the data required by the proposed General Permit regulations.

Total Cost - \$28,870.00

### **4.0 Summary**

The professional consultant costs associated with the initial implementation for these proposed regulations would be \$39,400 for dairies that are required to install monitoring wells. The annual costs for professional consultants for these same dairies would be \$28,870.

### ***Table of Appendices***

---

Appendix A – Individual Cost Estimate Worksheets

A146

Appendix A  
Individual Cost Estimate Sheets

BPLA

A147



**Monitoring Well Installation Completion Report**

Task	Hrs	\$/hr	Lab	Consult	Total
On-Site Investigation of Wells	3	\$ 125.00			\$ 375.00
Review Well Logs	2	\$ 125.00			\$ 250.00
Prepare Installation Report	7	\$ 125.00			\$ 875.00
<b>Total</b>					<b>\$1,500.00</b>

**Owner Facility Monitoring**

Task	Hrs	\$/hr	Frequency	Insp	Total
Pond Levees, Berms, Rodent Holes	0.5	\$ 75.00	Daily-Irr	60	\$ 2,250.00
Erosion, Field Saturation, Runoff, Nuisance	0.5	\$ 75.00	Daily-Irr	60	\$ 2,250.00
Volume of Wastewater	0.15	\$ 75.00	Daily-Irr	60	\$ 675.00
Weight and Moisture of Solid Manure	0.05	\$ 75.00	Daily-Irr	60	\$ 225.00
Weather Conditions, before, during, after	0.05	\$ 75.00	Daily-Irr	60	\$ 225.00
Identification of Crops, Acreage, Planting	2	\$ 75.00	Annually		\$ 150.00
Unauthorized Release-Covered Elsewhere					\$ -
Levee and Berm Maintenance	0.15	\$ 75.00	Event	8	\$ 90.00
Manure Tracking Manifest	0.75	\$ 75.00	Event	14	\$ 787.50
<b>Total</b>					<b>\$ 6,652.50</b>

**Manure & Process Wastewater Monitoring**

Task	Hrs	\$/hr	Lab	Consult	Total
Manure Sampling/Testing	5	\$ 95.00	\$ 300.00		\$ 775.00
Wastewater Sampling/Testing	8	\$ 95.00	\$1,000.00		\$ 1,760.00
<b>Total</b>					<b>\$ 2,535.00</b>

**Soil Monitoring**

Task	Hrs	\$/hr	Lab	Consult	Total
Soil Sampling	8	\$ 75.00	\$ 540.00		\$ 1,140.00
<b>Total</b>					<b>\$ 1,140.00</b>

**Discharge & Surface Water Monitoring**

0.31.1

A149

Task	Hrs	\$/hr	Lab	Consult	Total
Reporting	1	\$ 125.00			\$ 125.00
Sampling(3 locations)	8	\$ 125.00			\$ 1,000.00
Volume Determination	3	\$ 125.00			\$ 375.00
Report Preparation (Events/Mapping)	4	\$ 125.00			\$ 500.00
<b>Total</b>					<b>\$ 2,000.00</b>

<b>Storm Water Monitoring</b>					
Task	Hrs	\$/hr	Lab	Consult	Total
Stormwater Sampling	6	\$ 125.00	\$ 600.00		\$ 1,350.00
Annual Insp	3	\$ 125.00			\$ 375.00
Dry Season Insp	3	\$ 125.00			\$ 375.00
Wet Season Insp	3	\$ 125.00			\$ 375.00
Annual Report	4	\$ 125.00			\$ 500.00
<b>Total</b>					<b>\$2,975.00</b>

**Well Installation Costs**

Well Depth	30	50	75	100	125	150
Well Permit	\$ 350.00	\$ 350.00	\$ 350.00	\$ 350.00	\$ 350.00	\$ 350.00
Utility Staking	\$ 100.00	\$ 100.00	\$ 100.00	\$ 100.00	\$ 100.00	\$ 100.00
Well Driller Mobilization	\$ 400.00	\$ 400.00	\$ 400.00	\$ 400.00	\$ 400.00	\$ 400.00
Well Fixed Costs	\$ 250.00	\$ 250.00	\$ 250.00	\$ 250.00	\$ 250.00	\$ 250.00
Drilling/Const Costs	\$ 1,050.00	\$ 2,187.50	\$ 3,937.50	\$ 7,000.00	\$ 10,937.50	\$ 15,750.00
Well Sealing	\$ 450.00	\$ 450.00	\$ 450.00	\$ 450.00	\$ 450.00	\$ 450.00
Well Construction Report	\$ 125.00	\$ 125.00	\$ 125.00	\$ 125.00	\$ 125.00	\$ 125.00
Soil Boring Log	\$ 340.00	\$ 510.00	\$ 722.50	\$ 935.00	\$ 1,147.50	\$ 1,360.00
Well Development	\$ 210.00	\$ 350.00	\$ 525.00	\$ 700.00	\$ 875.00	\$ 1,050.00
Well Survey	\$ 450.00	\$ 450.00	\$ 450.00	\$ 450.00	\$ 450.00	\$ 450.00
<b>Total Per Well</b>	<b>\$ 3,755.00</b>	<b>\$ 5,222.50</b>	<b>\$ 7,385.00</b>	<b>\$ 10,860.00</b>	<b>\$ 15,210.00</b>	<b>\$ 20,435.00</b>
<b>3 Wells</b>	<b>\$ 11,265.00</b>	<b>\$ 15,667.50</b>	<b>\$ 22,155.00</b>	<b>\$ 32,580.00</b>	<b>\$ 45,630.00</b>	<b>\$ 61,305.00</b>
<b>4 Wells</b>	<b>\$ 15,020.00</b>	<b>\$ 20,890.00</b>	<b>\$ 29,540.00</b>	<b>\$ 43,440.00</b>	<b>\$ 60,840.00</b>	<b>\$ 81,740.00</b>
<b>5 Wells</b>	<b>\$ 18,775.00</b>	<b>\$ 26,112.50</b>	<b>\$ 36,925.00</b>	<b>\$ 54,300.00</b>	<b>\$ 76,050.00</b>	<b>\$ 102,175.00</b>

<b>Groundwater Monitoring</b>					
Task	Hrs	\$/hr	Lab	Consult	Total
Sampling/Testing Monitor Wells	24	\$ 125.00	\$ 4,000.00		\$ 7,000.00
Sampling/Testing Domestic Wells	6	\$ 125.00	\$ 1,000.00		\$ 1,750.00
Sampling/Testing Irrigation Wells	12	\$ 125.00	\$ 3,000.00		\$ 4,500.00
<b>Total</b>					<b>\$ 13,250.00</b>

<b>Annual Reporting</b>					
Task	Hrs	\$/hr	Lab	Consult	Total
Animal Numbers	0.25	\$ 125.00			\$ 31.25
Manure/Wastewater Generated	0.5	\$ 125.00			\$ 62.50
Manure/Wastewater Exported	0.25	\$ 125.00			\$ 31.25
Chemical Usage	1	\$ 125.00			\$ 125.00
NMP Reporting Summary	1	\$ 125.00			\$ 125.00
Appendix Preparation	0.5	\$ 125.00			\$ 62.50
<b>Total</b>					<b>\$ 437.50</b>

<b>Groundwater Reporting</b>
------------------------------

Task	Hrs	\$/hr	Lab	Consult	Total
Constituent Tables	2	\$125.00			\$ 250.00
Constituent Graphs	4	\$125.00			\$ 500.00
Historical Comparison	2	\$125.00			\$ 250.00
Groundwater Elev Mapping	4	\$ 95.00			\$ 380.00
Conclusions/Recommendations	4	\$125.00			\$ 500.00
<b>Total</b>					<b>\$ 1,880.00</b>